FIPS 201 Evaluation Program -
Electromagnetically Opaque Sleeve Test Procedure

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1 Overview

Homeland Security Presidential Directive-12 (HSPD-12) - "*Policy for a Common Identification Standard for Federal Employees and Contractors*" directed the promulgation of a new Federal standard for a secure and reliable form of identification issued by all Federal Agencies to their employees and contractors.

In addition to derived test requirements developed to test conformance to the NIST standard, GSA has established interoperability and performance metrics to further determine product suitability. Vendors whose products and services are deemed to be conformant with NIST standards and the GSA interoperability and performance criteria will be eligible to sell their products and services to the Federal Government.

1.1 Identification

This document provides the detailed test procedure that needs to be executed by the Lab in order to evaluate the Electromagnetically Opaque Sleeve (henceforth referred to as the Product) against the subset of applicable requirements that need to be electronically tested for this category.

2 Testing Process

As previously mentioned, this document prescribes detailed test steps that need to be executed in order to test the requirements applicable for this category. Please note that conformance to the tests specified in this document will not result in the Product being compliant to the applicable requirements of FIPS 201. The Product must undergo an evaluation using all the evaluation criteria listed for that category prior to being deemed as compliant. Only products that have successfully completed the entire Approval Process will be designated as conformant to the Standard. To this effect, this document only provides details for the evaluation using the Lab Test Data Report approval mechanism.

A Lab Engineer follows the steps outlined below in order to test those requirements that have been identified to be electronically tested. The end result is a compilation of the observed behavior of the Product in the Lab Test Data Report.

Section 3 provides the test procedures that need to be executed for evaluating the Product as conformant to the requirements of FIPS 201.

3 Test Procedure for Electromagnetically Opaque Sleeve

3.1 Requirements

The following table provides a reference to the requirements that need to be electronically tested within the Lab as outlined in the Approval Procedure for the Product. The different test cases that are used to check compliance to the requirements is also cross-referenced in the table below.

Identifier #	Requirement Description	Source	Test Case #
SLV.1	An electromagnetically opaque sleeve or other technology is required to protect against any unauthorized contactless access to information stored on a contactless IC.	FIPS 201, Section 4.4.2	SLV-TP.1

Table 1 - Applicable Requirements

3.2 Test Components

3.2.1 Baseline Configuration

The baseline configuration describes initial state of the Card Reader Test Fixture and its associated components. A Lab Engineer commences execution of this test procedure after performing the necessary updates to the baseline configuration based on the requirements of the test cases described below.

The Card Reader Test Fixture includes the following components as part of its baseline configuration:

1. The Host System – It includes the workstation, the Test Application software and the necessary drivers for the CLREADER.
2. Breakout Box – The USB and Serial Communication cables from the breakout box are connected to the Host System.

Figure 1 provides an illustration of the baseline configuration for the Card Reader Test Fixture.

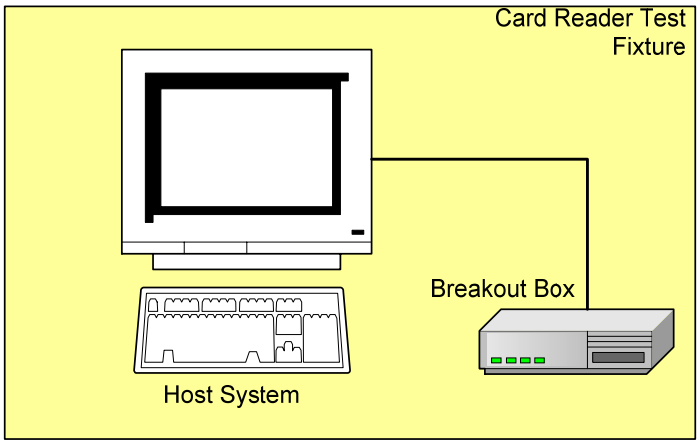


Figure 1 - Card Reader Test Fixture Baseline Configuration

3.2.2 Components Details

Table 2 provides the details of all the components required by the Lab to execute this test procedure. Based on the different test cases, different components may be required to execute the test case.

#	Component	Component Details	Identifier
1	The Card Reader Test Fixture	-	CRTF
2	Contactless PIV Card Reader	Integrated Engineering SmartLogon Pro v1.0, Conf: 01SMR-4120	CLREADER
3	PIV Card	Gemplus GemCombi Xpresso R4 E72K PK card with the Gemplus GemPIV applet v1.01	PCARD
4	The Electromagnetically Opaque Sleeve	-	PROD
5	A metric ruler longer than 10 centimeters	-	RULER

Table 2 - Test Procedure: Components

3.3 Test Cases

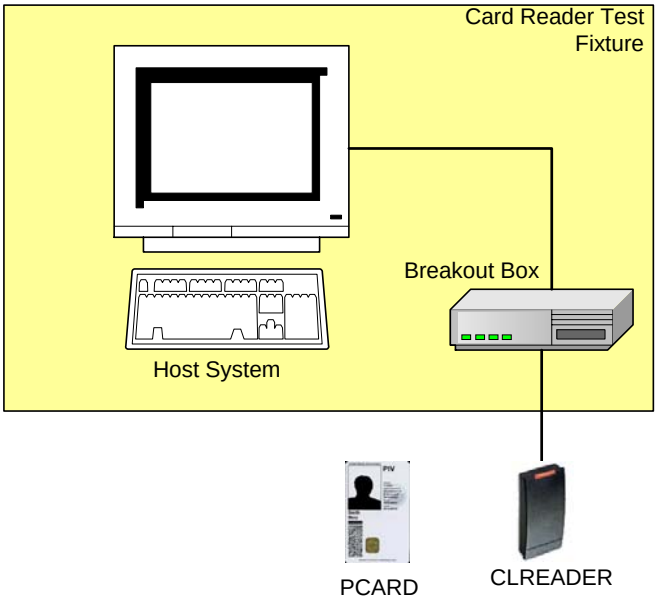
This section discusses the various test cases that are needed to test the Product against the requirements mentioned above.

3.3.1 Test Case SLV-TP.1

3.3.1.1 Purpose

The purpose of this test is to verify that the electromagnetically opaque sleeve shields the PIV Card from radio frequency signals transmitted by the reader at 13.56 MHz ± 7 KHz frequency range.

3.3.1.2 Test Setup

Equipment :	The following components are necessary for executing this test case: ▪ CRTF ▪ CLREADER ▪ PCARD ▪ PROD ▪ RULER
Configuration Diagram :	 **Figure 2 - Configuration Diagram for Test Case SLV-TP.1**
Preparation:	▪ Connect the CLREADER into the appropriate port in the breakout box of the CRTF. ▪ Verify that the CLREADER is correctly installed by reviewing its presence in list of hardware using the device manager of the host system.

3.3.1.3 Test Process

Test Steps:	1. Execute the Test Application on the CRTF. 2. Make sure that the details of the CLREADER and the PCARD are entered into the Test Application using the File → Edit Reference Contactless Card Implementation Info and File → Edit Reference Reader Implementation Info.

	3. Select the tab for the "Electromagnetically Opaque Sleeve". This selects the test for the Electromagnetically Opaque Sleeve in the Test Application. (*Note: - This test uses the contactless interface and continuously polls [for a fixed period of time] to read data of the PIV Card via the contactless reader.)* 4. Fill in all the information as required in the screen for the testing the PROD as shown in Figure 3. 5. Bring the PCARD within 10 centimeters of the CLREADER. (Make sure the distance is measured with RULER) 6. Click on the "Execute Test" button. Verify that the test was completed by reviewing the result. 7. Place the PCARD inside the PROD. 8. Repeat steps 4 and 5, holding the PCARD at a 10 cm distance (use RULER to verify the distance) and then gradually bringing it closer and closer to the CLREADER until it touches it. Verify that the test was completed by reviewing the result. 9. Once the results have been populated in the Test Results area, click on the "Show Test Report" button. The Test Results screen is displayed. 10. Click on the "Print Report" button to print a copy of the test results for PROD.
Expected Result(s):	1. The PCARD will respond when it is within proximity (less than ten centimeters) to the CLREADER when the PCARD is not in the PROD. In this case, data is successfully read from the contactless interface of PCARD. 2. The PCARD will not respond to the CLREADER when it is inside the PROD.

4 Electromagnetically Opaque Sleeve Test Application Screens

4.1 Testing Screen

The following represents a screen shot of the Test Application that is used when testing an Electromagnetically Opaque Sleeve. The Lab Engineer is expected to manually provide the information for **EOS Product Information** and **Tester Information** when completing testing.

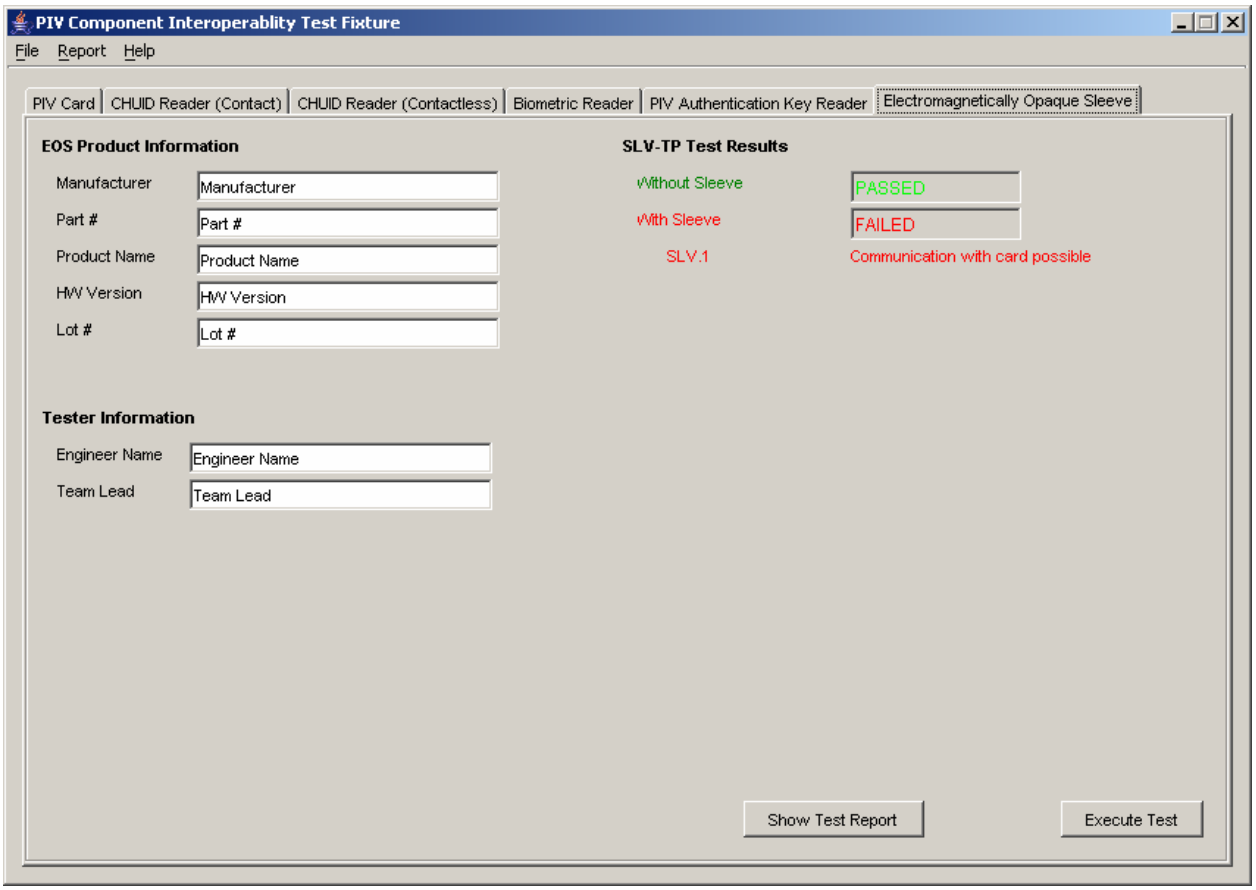


Figure 3 - Test Screen for the Electromagnetically Opaque Sleeve

4.2 Test Report Screen

The following represents a screen shot of the test report that is generated by the Test Application after the Electromagnetically Opaque Sleeve testing has been completed. It provides the Lab Engineer with a reference of what to expect as a result of successful execution of the test procedure. A Lab Engineer is not expected to fill out any portion of the report manually.

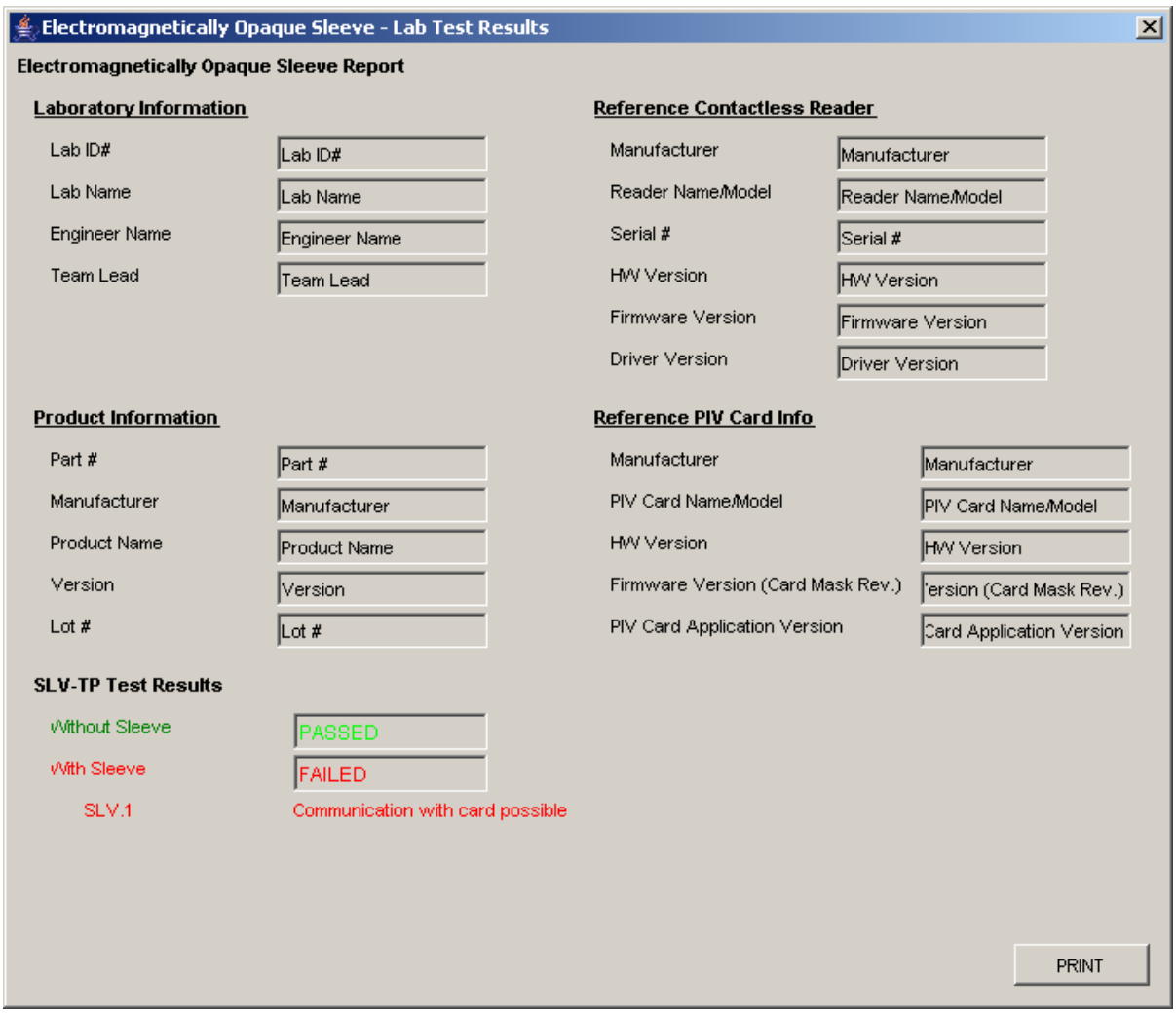


Figure 4 - Test Report for the Electromagnetically Opaque Sleeve